1. Professor E. Thompson thinks that the injury is caused by the *x* rays, or by something that constantly accompanies them. He himself was sceptical as to the traumatism, and exposed his own hand at a distance of a few inches to a Crookes's tube, an experiment which resulted in a severe dermatitis.

2. Tesla maintains the effect to be due to ozone liberated in the surface tissues. His theory, however, is upset if we accept the existence of focus tube traumatism of the deeper structures, where ozone is not generated.

3. Gilchrist fancies the result to be due to actual particles of platinum carried by the cathode rays. If so, they must have been carried through a board in Dr. Murray's case.

Personally the writer is inclined to think that the focus-tube traumatism may ultimately prove to be due to heat rays, in other words, to be a kind of burn. The cathode rays strike the platinum anode or anti-cathode and make it hot; there they are in part converted into Roentgen or *x* rays. What becomes of the rest of the cathode rays is not quite known, but it is generally believed that some of them, at any rate, are converted into heat rays, by which means a tube in action becomes warm.

This heatburn theory was suggested to the writer by the following cases, brought under his notice by Mr. Webster, of Blackheath, a gentleman who has had considerable experience of Roentgen-ray work. In the first instance he exposed an individual something like a score of times during a period of six months. Six weeks after the last exposure the hair fell out from one side of the head. The only differing condition of experiment, so far as could be ascertained, in the last exposure was that the cathode end of the Crookes's tube had been kept continually heated.

The other case was that of Mr. Webster himself. For a year or more he had undergone constant exposure to the rays without bad results. He then injured himself with a metal developing solution, and shortly afterwards a diffuse dermatitis appeared on the back of his hand. This traumatism, again, coincided with the heating of the cathode end of the tube.

Now in both the above instances previously insusceptible persons became susceptible under altered conditions of experiment. The alteration consisted in heating the cathode end of the tube, which means, when applied to a Crookes's tube in action, an increased production of cathodal rays which are, as already stated, in part converted into heat rays. There is therefore some probability that in heating the cathodal end of the tube we increase the resulting heat rays thrown off from the tube. Lastly, the cathode rays strike the platinum anode or anti-cathode and render it red hot, and it is not unreasonable to suppose that their contact with the skin surface might also have a calorific effect. The identity, however, of the actual damaging factor to the living human tissues is still unascertained. It may possibly prove to be a non-luminous ray common to sunshine and to the rays emitted from a focus tube. In both sun and focus-tube traumatism individual predisposition plays a vital part. Whatever the real nature of the irritant ray, it is obvious that the subject is pregnant with future possibilities as it is instinct with present interest.

REFERENCES.

¹ *Scottish Medical and Surgical Journal*, February, 1897. ² *The Johns Hopkins Hospital Bulletin*, No. 71, February, 1897. ³ *BRITISH MEDICAL JOURNAL*, 1896, ii, p. 1238. ⁴ *Lyon Med. Journal*, December 28th, 1896.

DENTAL HOSPITAL OF LONDON.—At a *conversazione* given recently by the staff and lecturers of the School of Dental Surgery of the Dental Hospital, London, at the Royal Society of British Artists, Sir F. Lockwood, M.P., distributed the prizes to the students of the hospital. In his address he referred to the great progress which had been made in the profession of dentistry during recent years. He was much impressed by the fact that last year relief was granted to 57,654 cases too poor to pay for surgical aid. The Committee have commenced the erection of a new hospital in Leicester Square, upon a larger site, near the existing hospital, at a cost of £25,000, exclusive of the site. The new building will largely increase the accommodation by providing 150 operating chairs. At present only 40 are available.

CIRROID ANEURYSM OF THE ORBIT, FOREHEAD, AND SCALP.

By W. M. BEAUMONT, M.R.C.S.,

Surgeon to the Bath Eye Infirmary.

CASES of cirroid aneurysm are not very common. Amongst the last 20,000 patients at the Bath Eye Infirmary the following is the only one; and although the brow and orbit are favourite sites, it is probably very much rarer at ophthalmic institutions than these figures would indicate:

A. B., a servant, aged 22, presented herself at the Bath Eye Infirmary on February 8th, 1894, complaining of a pulsating tumour, which appeared to start from the upper part of the interior of the left orbit, spreading upwards to the lid of the eye, the brow, and the left half of the frontal bone. It consisted of a tortuous, dilated, and plexiform condition of the vessels, and extended backwards behind the coronal suture, whilst anteriorly it was lost in the roof of the orbit. Strongly pulsating vessels ran into it from the occipital artery behind, from the temporal on the left side and from the angular in front, whilst vessels crossed the median line from the right frontal and temporal regions. They were all of a dusky hue. The skin was raised and depressed by varicose vessels, which were convoluted upon each other. These were soft and resilient, and in them a vibratory thrill could be felt and a rasping murmur heard. On deep pressure an irregular ridge-like margin could be distinguished, bounding the angelomatous swelling all round as though there were either an absence of bone under the tumour or that it had been deeply grooved by a prolonged erosion. The area involved corresponded approximately with that of a case of Bruns illustrated by Bland Sutton.¹ The veins were not visibly enlarged, and there was no evidence that they were in any way abnormal. The swelling she said had existed from birth, and she had never had an injury to her head or brow; it had grown with her growth, but had never given her much trouble nor caused her any anxiety. Late, however, she had developed a left external squint, and she had had severe headaches, which was not the case in childhood. Her friends noticed the swelling, and whereas formerly she could easily cover it by a fringe of hair brought over the forehead, this was now no longer sufficient to hide the disfigurement. Her vision in that eye was reduced to $\frac{1}{2}$, and the disc was white with pigmented borders. Pressure on the temporal artery or on the external carotid lessened the thrill, but it was evident that much of the circulation was due to anastomosing vessels running up from the occipital, the opposite temporals, the right angular and other arteries. In the photograph (Fig. 1) the right anterior temporal and angular arteries are plainly seen.

Fig. 1.—July, 1894.

The next few months clearly demonstrated that she was right in her statement that the tumour was increasing. The eye became proposed and more displaced downwards and outwards; the skin more dusky and the headaches more frequent. They prevented her from carrying out her household duties in a satisfactory manner, and that part of the swelling which could be seen on the forehead and brow was very disfiguring. The time had arrived when it was necessary for the patient's comfort, for her appearance, for her sight, and for possibly stronger reasons, that some surgical attempt should be made to check the increase. Her consent having been obtained, the hair was cut off close to the scalp over the left half of the frontal bone, the rugose condition of the head preventing a razor from being used, and ether was administered on July 29th, 1894. An incision was then made through the skin over the temporal artery just before it divides and at right angles to the course of the vessel. No attempt to dissect down upon it was made, but the edges being retracted the site of the vessel was found by the pulsation, and a catgut ligature was passed under it by means of a sharp aneurysm needle. The ends of the ligature were then tied, including in the knot the temporal artery and surrounding it, after which the edges of the wound were brought together by sutures. In the same way ligatures were rapidly applied to seven other arteries, including the angular, supra-orbital, occipital, and on the other side of the head the anterior and posterior temporals, and angular, in each case before the vessel became varicose. All the principal feeders, with the exception of possibly some branches of the ophthalmic, which being within the orbit could not be reached, were thus occluded, and the thrill and pulsation were immediately very much reduced in intensity.

The next step was to insert subcutaneously, in an opposite direction to each other, two needles, with an exposed surface of about an inch, into the anterior and outer part of the tumour. When in position the needles were parallel, and an inch apart. A current of 100 milliamperes was passed through for ten minutes, then, the current being stopped, the needles were withdrawn and reinserted in the anterior and inner quarter in a similar manner for another ten minutes. The posterior outer and posterior inner quadrants were also thus treated, a current of 100 milliamperes being allowed for each section. It was now found on withdrawing the needles for the fourth time that all parts of the tumour were harder, that its resiliency was absent, and the pulsation could barely be felt. The operation was somewhat prolonged, but the patient quickly recovered from the anæsthetic, and was quite comfortable the next day. On the third day the skin sutures over the seats of ligature were removed.

During the following week two new vessels enlarged at the posterior and external part of the swelling, and three weeks after the operation it was thought advisable to ligature them, and electrolysis of the part supplied by them was resorted to. The final result was quite satisfactory; she made a good recovery, and was discharged from the infirmary on September 15th, 1894. Since then she has presented herself for examination from time to time. The second illustration, from a photograph taken in January, 1895, five months after the second operation, shows her condition much as it is now (May, 1897). The tumour is very much lessened in size,

Fig. 2.—January, 1895.

the surface inequalities have disappeared, and it feels almost solid. A soft-blowing murmur can be faintly heard with the stethoscope, but it gives her no trouble. The headache has gone, the eye has returned to its place, and there is nothing unusual in her appearance. I am much indebted to Mr. H. G. Terry for superintending the battery and helping me with the operation generally.

In reviewing this case, there are one or two points of interest which deserve some observation. It will be noticed that the feeders were ligatured, a method of treatment which alone is not usually sufficient to cure cirroid aneurysm, and which has consequently fallen into disrepute. Even such severe measures as ligature of the common or external carotid have usually failed. The statistics collected by C. Heine² show that "in 32 cases out of 60 the external carotid was tied, and in 3 only with successful result, and that doubtful, and the results of ligature of both carotids in 7 cases were equally unfortunate." Although ligation on the one hand would probably have failed, I think it is open to doubt whether the result would have been quite as satisfactory on the other if electrolysis alone had been relied upon.³ It was a large mass to deal with, measuring probably if the orbital portion were included at least 7 inches by 5, and the pulsation through it was very strong. The ligatures were put on the vessels in an unusual manner, but much time was saved thereby, and no ill-results ensued from including nerves or veins in the knot, the wounds having healed painlessly in three days when the dressings were first changed. Although nothing was done directly to the orbital portion it partook in the general benefit, due probably to the starvation which ensued from distal obstruction through it, the shrinkage being sufficient to allow the eye to return to its normal position in the orbit.

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¹ *Tumours Innocent and Malignant*, 1893, p. 163. ² *Biennial Retrospect of Medicine and Surgery for 1869-70*, *New Sydenham Soc. Trans.*, p. 287. ³ J. E. Erichsen, *Science and Art of Surgery*, 9th edit., vol. ii, p. 68; J. Duncan, *BRITISH MEDICAL JOURNAL*, 1888, vol. ii, p. 984.

M. CAMBON, Governor of Algeria, has commissioned Madame Chellier, M.D., to make a tour of inspection through Southern Algeria, with the object of introducing scientific medicine and midwifery among the natives.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

REGROWTH OF HAIR IN MYXEDEMA UNDER TREATMENT WITH THYROID TABLOIDS.

In the *BRITISH MEDICAL JOURNAL* of January 6th, 1894, I published an account, with illustrations, of the treatment of an old case of myxœdema with thyroid extract. The portraits, which were reproduced from photographs, showed the striking change that had been effected by five weeks' treatment.

I now supplement my paper of that date with the accompanying portraits, which represent the same patient, a woman aged 66, as she appeared before any treatment was attempted and as she appeared after taking two thyroid tabloids daily for fifteen months.

I would ask the question, Does not the remarkable influence of thyroid extract upon hair growth suggest that the thyroid gland in its function is largely occupied with nutrition of the skin?

THOS. F. RAVEN, M.R.C.S., L.R.C.P.

Broadstairs.

AIR EMBOLISM FROM WOUND OF THE FEMORAL VEIN.

I was called to perform a *post-mortem* examination on a Chinese coolie, who had died the previous afternoon from the effects of a spear wound in the right thigh. He received the wound in a faction fight; and seemed to have died about an hour after its receipt. When I examined the body *post-mortem* rigidity was absent; *post-mortem* lividity was marked over the back of the neck and over the lower part of the lumbar region and the right thigh. The only wound was a punctured one